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ABSTRACT

Two surveys were conducted by the Computer Technology Program of the Northwest Regional Educational Laboratory in the spring of 1979 to obtain information for planning a clearinghouse of computer-based educational materials and a regional program of user support and technical assistance. A postcard questionnaire was sent to all school superintendents in the six states in the region to determine the current status and future plans for computer use in administration and instruction. A more comprehensive study of information and assistance needs was conducted through a survey of teachers who were at least somewhat knowledgeable of or experienced with using computers in instruction. The questionnaire for teachers was composed of six sections: demographic data, computer use, meeting current information and assistance needs, software sources, information needs, and assistance needs. The results of the two surveys are reported with 17 supporting tables. The conclusions include a discussion of availability of computer terminals, uses of computers, current ways of meeting information and assistance needs, and needs for information and assistance. A sample questionnaire and cover letter from each survey are appended. (CHC)

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EDUCATIONAL COMPUTING IN THE NORTHWEST, 1979:

STATUS, AND

NEEDS FOR INFORMATION AND ASSISTANCE

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I. INTRODUCTION

In the spring of 1979 the Computer Technology Program initiated a major planning effort for a clearinghouse of computer-based educational materials and a regional program of user support and technical assistance. To provide a basis for this planning, two regional studies were conducted. The results are reported separately here.

All school superintendents in the six states in the region were surveyed to determine the current status and future plans for computer use in administration and instruction. A more comprehensive study of information and assistance needs was conducted through a survey of teachers who were at least somewhat knowledgeable of or experienced with using computers in instruction.

The results of these studies provide status and needs data for carrying out planning under NIE grant number OB-NIE-G-78-0206.

A number of people were involved in conducting and reporting of these studies. They include William Frerichs, Ralph Van Dusseldorp, Antoinette Ellis, Evelyn Brzezinski and Judith Edwards, all of Northwest Regional Educational Laboratory.

Special thanks go to the teachers and superintendents who made time to complete and return the questionnaires.

II. SUPERINTENDENT SURVEY

A. SUMMARY

The purpose of this study was to determine the current and expected future status of the use of computers for administration and instruction in the region. Information for the study was gathered from superintendents in the states of Alaska, Hawaii, Idaho, Montana, Oregon and Washington. Post card questionnaires were sent to all 892 superintendents in the six states. Usable responses were received from 399 superintendents.

The superintendents were asked if computers were currently being used for administration and if computers were being used for instruction. If either response was negative, a followup question was asked concerning planned use within three years. A telephone followup of a random sample of nonrespondents was also conducted.

Of those responding to the questionnaire, 66 percent of the superintendents indicated that their districts are currently using computers for either administration or for instruction, or both. Fifty-nine percent use the computer for administration, and 34 percent use computers for instruction. The respondents anticipated that 73 percent of the districts will use computers for administration and 58 percent for instruction within three years. Ninety-six percent will be using computers in one or both areas within three years.

It is concluded that there is currently a substantial use of computers in the region's school districts for administrative purposes and, to a lesser extent, for instruction. It is also suggested that this usage will increase over the next three years, with the most dramatic increase being in instructional usage.

B. PROCEDURES

A simple post card questionnaire was sent to every school superintendent in the region. To determine current and projected future status of computing, the superintendents were asked to respond to the following items:

1. My district currently is using a computer(s) in administrative tasks.

   ___ Yes ___ No

   If No: My district probably will be using a computer(s) in administration within 3 years.

   ___ Yes ___ No

2. My district currently is using a computer(s) in the instructional program.

   ___ Yes ___ No

   If No: My district probably will be using a computer in instruction within 3 years.

   ___ Yes ___ No

To encourage response, the questionnaire was designed to take no more than 15 seconds to complete, and the procedure for its return involved simply detaching the postcard and mailing it. (A copy of the complete questionnaire is provided in the Appendix to this report.)

C. RESULTS

The results of the superintendent survey presented here are based on 399 usable questionnaires returned. Of the respondents, 66 percent reported current use of computers for either administration or instruction, (or both). The expected use of computers for one or both areas

within three years was 96 percent.* That is, 383 of the 399 superintendents answered yes to one or more of the four questions.

Currently, 59 percent of districts responding use computers in administration. That is expected to be 73 percent within three years. Instructional use, currently in 34 percent of the districts responding, is expected to be 58 percent within three years. These results are summarized by state in Tables 1 and 2.

Table 1

Districts Currently Using Computers

State	Administrative Use N	%	Instructional Use N	%
Alaska	20	71	5	18
Hawaii	2	67	1	33
Idaho	29	73	5	13
Montana	19	24	28	35
Oregon	74	66	61	54
Washington	91	66	36	26
TOTAL	235	59	136	34

*This assumes that all districts who are currently using computers will continue to do so.

Table 2

Districts Expected to be Using Computers Within Three Years *

State	Administrative Use N	%	Instructional Use N	%
Alaska	25	89	16	57
Hawaii	2	66	2	66
Idaho	30	75	12	30
Montana	38	48	54	68
Oregon	85	76	80	71
Washington	110	80	67	49
TOTAL	290	73	231	58

*These figures represent the sum of the numbers of current users and expected users.

To determine if results for respondents could be generalized to the entire population, or represented a biased group of the population, a followup of a random sample of 20 nonrespondents was carried out. The results of the followup are summarized in Table 3.

Table 3

Districts Using Computers in
Followup of Random Sample of Nonrespondents
(Sample Size = 20)

State	Administrative Use N	%	Instructional Use N	%
Districts currently using computers	16	80	8	40
Districts expecting to be using computers within three years	18	90	10	50

The higher percentages obtained in most categories of the followup suggest that there may be some bias in favor of non-users among the respondents. However, it can be safely inferred that the number of districts using or expecting to use computers in administration or instruction is at least as high as that obtained in the original survey.

D. CONCLUSIONS AND IMPLICATIONS

Based on the data collected through this survey, it is concluded that approximately 66 percent of the districts in the region are already using computers in some capacity, and an additional 30 percent are planning to begin use within the next three years. Thus, the status of educational computing in the Northwest is one of substantial current use and expected growth. This implies a significant need for information, user support and technical assistance in such an environment.

III. TEACHER SURVEY

A. SUMMARY

The purpose of this study was to determine the information and assistance needs of teachers involved in the use of computers in order to provide the basis for the design of effective user support and technical assistance services in educational computer technology. In order to assess needs, information was gathered from teachers in grades K-12 who had knowledge of and/or experience with computers. The study was limited to teachers in the six states within the geographic area served by the Northwest Regional Educational Laboratory--Alaska, Hawaii, Idaho, Montana, Oregon and Washington. Potential respondents, teachers with computer knowledge and/or experience, were identified through the Oregon Council for Computing Education, the Laboratory Exchange Program, participant lists for computer related NSF-funded projects in the region and local superintendents. Four hundred and fifty-six copies of a questionnaire were distributed, though over half were distributed to superintendents or contact persons with the request to pass them along to appropriate teachers. Usable responses were received from 163 teachers, an acceptably substantial return considering the indirect distribution.

The questionnaire was designed to gather information about the characteristics of the respondents (state, grade level and subject area taught, and years of experience), computer training, computer availability, current uses and plans for uses of computers, current ways of meeting information and assistance needs, sources of software, and needs for information and assistance.

Most of the respondents were from Oregon, Montana and Washington. They had an average of about 10 years teaching experience and about two years of experience in using computers in their classes. Most were teaching at the high school level in the areas of math, science and computer science. Most of their training was in computer programming.

About two-thirds of the respondents had computer terminals or microcomputers available in their schools for use with their classes. The most frequent current uses clustered in the areas of teaching about computers and how to use computers. However, uses of the computer as an instructional tool were most frequently mentioned as planned future uses.

The most frequently available and the most frequently used sources of information and assistance were from outside the teachers' schools and districts - mostly periodicals, professional organizations, teachers outside the school and college faculty. The most frequently used software was created by the teachers themselves. Teachers also frequently used software from periodicals and hardware vendors.

Respondents felt that almost any kind of information and assistance would be helpful. They rated as most helpful information about and assistance in using computers in their own teaching areas, expanding computer use in their schools, places to find help in using computers in instruction, locating existing instructional applications and materials, and developing computer literacy/science courses.

Thus it is concluded that there is a real need for providing information about and assistance with computers in education. It appears that to serve current computers users, services should be concentrated toward assisting high school teachers of mathematics, science and computer science. This survey suggests that service should be

concentrated in both areas involving teaching about computers and how to use computers and those involving the use of computers as instructional tools in order to address both current and future needs.

B. PURPOSE OF THE STUDY

Since computer technology entered the field of education as an instructional tool as well as a curricular subject in the late 1950's, the needs surrounding this educational technology have predictably expanded from primary emphasis on acquisition of hardware and basic information and/or materials to a wide spectrum of user-support and technical assistance needs on the part of educators at all levels and spanning all educational precincts, including administration, instruction and curriculum. The current range of multiple and intersecting needs in educational computing suggests the timeliness of efforts toward coherent support and assistance structures for the 1980s.

Such structures would necessarily be designed to serve the priority needs in educational computing; however, a detailed assessment of the priorities in the field for the current years 1978-1979 has not been available. To determine the needs currently experienced as most pressing among teachers involved in computers in education, therefore, a survey was conducted in the spring of 1979 in the Northwest region. The purpose of this study was to determine the information and assistance needs of teachers in order to provide the basis for the design of effective user support and technical assistance services in educational computer technology.

C. PROCEDURES

The Sample

In order to assess the needs currently being experienced in the field of computers in education K-12, a sample of K-12 teachers in the region who were computer-knowledgeable and who had active interest in using computers in education (whether or not they had as yet actually used the computer in classes) were surveyed. A list of such teachers in the six regional states was compiled from various sources in the region, including the Oregon Council for Computing Education, the Laboratory Regional Exchange, and participant lists for NSF-funded projects in the region. Questionnaires were mailed to the teachers thus identified and to superintendents of Alaska school districts. The reason for mailing the questionnaires to the Alaska superintendents was that the teacher lists compiled through the sources mentioned above included the names of no Alaska teachers. Each Alaska superintendent was asked to pass the questionnaire on to a computer-knowledgeable teacher in the district, if any. A total of 456 questionnaires were distributed in March 1979.

The Questionnaire

As the vehicle for this study, a questionnaire was designed to survey both the current uses of computers and the needs for information and assistance being experienced in the field. The questionnaire was reviewed and revised by experts in the field to maximize its effectiveness and inclusiveness. In final form, the questionnaire was composed of six sections:

I. Demographic Data. In order to determine what types of teachers were involved with computers and to be able to relate information and assistance needs to teacher type, several items of demographic

information were called for in the questionnaire--address (to identify state), grade level taught, subject areas taught, computer training, availability of computer facilities, years of teaching experience and years of computer experience.

II. Computer Use. A list of 21 possible ways the computer could be used in the classroom were listed. Teachers were asked to indicate if they had used the computer for each of those ways in the past, were currently using the computer in each of the ways, or planned to use the computer in each of the ways. The assumption here was that most appropriate information and assistance would be in areas of current and planned future use.

III. Meeting Current Information and Assistance Needs. For this part, 12 possible sources of information and assistance were listed along with "other." For each source, teachers were asked to indicate if it was available to them, and, if available, how much they used it. The purpose for this part was to determine what sources of information and assistance are available to teachers and the quantity of use of the various sources.

IV. Software Sources. Six possible sources of computer software, along with "other" were listed. Teachers were asked to indicate their proportion of use of software from those various sources. The purpose of this item was to determine which sources of hardware teachers were most inclined to use.

V. Information Needs. The assumption prompting this section's design was that an agency can provide the most effective computer-related information to teachers if that information is oriented to the needs experienced by the teachers. The purpose of this section of the questionnaire was to determine those needs. A list of 21 possible areas

of information, plus "other," was provided. For each item, teachers were asked to indicate its degree of helpfulness to them.

VI. Assistance Needs. In this section 18 possible assistance and support activities, plus "other," were listed. Teachers were asked to indicate the potential degree of helpfulness of each of those activities. It was felt that design of assistance should be based in large part on the extent to which teachers felt various types of assistance would be helpful to them.

To encourage prompt and efficient response, the questionnaire was designed to take no more than ten minutes to complete and the procedure for its return involved simply folding the questionnaire in two (exposing a mailing face imprinted with return address and postage), stapling and mailing it. A copy of the complete questionnaire is provided in the Appendix to this report, along with a copy of the accompanying letter.

D. RESULTS

The results of the study are presented in this section. The data presented are based on 163 usable questionnaires returned by the teachers.

Characteristics of Respondents

The characteristics of the teachers from which completed questionnaires were received are shown in Tables 4 through 8.

Table 4 shows the states in which the responding teachers were teaching. As shown, the largest numbers of returns were from Oregon (67), followed by Montana (43) and Washington (31). Few responses were received from the other states represented--Alaska (9), Hawaii (6) and Idaho (3).

Table 4

Respondents' State of Residence

State	N	%
Alaska	9	5.5
Hawaii	6	3.7
Idaho	3	1.8
Montana	43	26.4
Oregon	67	41.1
Washington	31	19.0
Unidentified	4	2.5
Totals	163	100.0

Table 5 shows the respondents' years of teaching experience and number of years using a computer. Years of teaching experience were fairly evenly distributed through 20 years. Although the survey instrument was directed only to teachers with knowledge about computers, who, it was assumed, were predominantly among the new teachers in the field, it is interesting to note that a large portion of the respondents had extensive teaching experience. Over half of the respondents had ten or more years of teaching experience. Thus, it is clearly not primarily beginning teachers who are learning about and using computers. As also shown in Table 5, about one-fourth of the respondents indicated that they had had no years experience in using a computer, while about half had from one to four years of computer use, and about one-fourth had five or more years experience with the computer.

Table 5

Respondents' Years of Experience

Years of Experience	Teaching		Using Computer	
	N	%	N	%
0	2	1.2	44	27.0
1-4	20	12.2	78	47.8
5-9	46	28.3	33	20.3
10-14	43	26.3	8	4.9
15-20	41	25.2	0	0.0
No Response	11	6.7	0	0.0
Totals	163	100.0	163	100.0

Table 6 shows the grade levels taught by the respondents. The vast majority (90.8 percent) taught in grades nine through 12. Very few (5.5 percent) taught in the lower elementary grades.

Table 6

Grade Level Taught by Respondents

Grade	N	%*
K-4	9	5.5
5-8	51	31.3
9-12	148	90.8

*Percents total more than 100 since some respondents fit more than one category.

Most of the respondents taught mathematics, science, data processing and/or computer science (Table 7). Besides those areas, the subject represented by the most teachers was social science with eight. Thus, if one can generalize from these results, it appears that, as has been traditionally true in the past, most teachers with computer knowledge and utilization are still in the areas of mathematics, science and computer science with little representation outside those subject areas.

Table 7

Content Areas Taught by Respondents

Subject	N	%*
Mathematics	135	82.8
Science	50	30.7
Data Processing	11	6.7
Social Science	8	4.9
Computer Science	73	44.8
Music	2	1.2
Other	33	20.2

*Percents total more than 100 since some respondents fit more than one category.

As Table 8 shows, only 14.7 percent of the respondents reported having had no training in computing or computer use in education; that is, over 85 percent had had computer-related training. The most frequently reported training was in computer programming (72.4 percent), followed by computer use in the teacher's own discipline (38.7 percent), computer science (30.7 percent) and survey of computers in education (20.2 percent).

Table 8

Respondents' Training in Computing, Computer Use

Area of Training	N	%*
Computer use in respondent's own discipline	63	38.7
Business data processing	15	9.2
Computer programming	118	72.4
Survey of computers in education	33	20.2
Computer science	50	30.7
Other	16	9.8
No training	24	14.7

*Percentage totals more than 100 since some respondents indicated training in more than one area.

To summarize the characteristics of the teachers responding to the survey:

- o They were distributed among all of the six states surveyed, but most were from Oregon, Montana and Washington.
- o Most have had at least five years teaching experience.
- o Most have used a computer at least one year.
- o Most were teaching in grades nine through 12.
- o Most were teaching mathematics, science, data processing and/or computer science with very little representation of other subject areas.
- o Most received computer training in computer programming with about one-third having received training in the use of computers in their own disciplines.

Thus, as was true in the past, the teachers currently using and/or interested in computers teach primarily in secondary schools in the areas of mathematics, science and computers, and have been trained in computer programming. The only unexpected characteristic is that these teachers typically have more years teaching experience than would have been anticipated.

Availability of Computer Terminals

Tables 9 and 10 show the immediate availability of computers to the responding teachers.

As shown in Table 9, two-thirds of the teachers reported that either a computer keyboard terminal or microcomputer was available in their schools. Almost half (44.8 percent) reported that a computer terminal was available for their classes any time they needed it. An additional 15.3 percent reported that one was available some of the time (Table 10).

Table 9

Availability of Terminals
in Respondents' Schools

No. of Terminals	N	%
0	54	33.1
1	42	25.8
2	27	16.6
3-5	27	16.6
6-10	13	8.0
Totals	163	100.0

Table 10

Respondents' Reports on
Availability of Terminals for Class Use

Availability for Class Use	N	%
Yes, anytime I need it	73	44.8
Yes, some of the time	25	15.3
No	61	37.4
No Response	4	2.5
Totals	163	100.0

Uses of Computers

Table 11 shows the various ways that the teachers had used, were currently using, had not used but planned to, and had no plans to use or teach about computers. The most frequently mentioned current uses were to teach programming (53.5 percent), student problem solving (48.4 percent), to teach terminal operation (45.8 percent), for leisure time activity (44.9 percent), instructional games (38.6 percent), to teach about computer careers (38.3 percent), and to teach about the role and impact of computers in society (36.8 percent).

As indicated in Table 11, the most frequent current uses of computers were concentrated in areas of teaching about computers or teaching how to use computers. Computers were currently used less frequently as instructional tools.

Table 11

Respondents' Use of Computers

Computer Activity	Past/ Not Now		Current Use		Future Plans		Never		No Response	
	N	%	N	%	N	%	N	%	N	%
As a calculator	22	14.4	52	34.0	16	10.5	36	23.5	27	17.6
Run simulations	26	16.7	42	26.9	49	31.4	11	7.1	28	17.9
Instructional games	25	16.3	59	38.6	34	22.2	11	7.2	24	15.7
Leisure time activity	22	14.1	70	44.9	23	14.7	13	8.3	28	17.9
Student problem solving	13	8.4	75	48.4	36	23.2	6	3.9	25	16.1
Drill in math, spelling, etc.	20	12.9	44	28.4	43	27.7	17	11.0	31	20.0
As a tutor (teach content)	19	12.2	21	13.5	54	34.6	24	15.4	38	24.4
Demonstrate concepts	11	7.1	43	27.6	40	25.6	20	12.8	42	26.9
Score tests	4	2.6	14	9.0	36	23.1	59	37.8	43	27.6
Instructional management	5	3.2	13	8.3	34	21.8	60	38.5	44	28.2
Materials generation (tests or worksheets)	11	7.1	18	11.5	41	26.3	46	29.5	40	25.6
Information retrieval	9	5.8	35	22.4	43	27.6	29	18.6	40	25.6
Student analysis of data	8	5.1	31	19.9	51	32.7	24	15.4	42	26.9
Teach programming	19	12.3	83	53.5	23	14.8	9	5.8	21	13.5
Teach terminal operation	19	12.3	71	45.8	22	14.2	17	11.0	26	16.8
Teach data processing	6	3.9	41	26.5	35	22.6	32	20.6	41	26.5
Teach hard- & software procedures	9	5.8	48	30.8	29	18.6	29	18.6	41	26.5
Teach history of computer	13	8.4	46	29.7	24	15.5	35	22.6	37	23.9

Table 11 (cont'd)

Computer Activity	Past/ Not Now		Current Use		Future Plans		Never		No Response	
	N	%	N	%	N	%	N	%	N	%
Teach how computers are applied	13	8.4	61	39.4	34	21.9	18	11.6	29	18.7
Teach about computer careers	11	7.1	59	38.3	24	15.6	24	15.6	36	23.4
Teach about role and impact of computers in society	13	8.4	57	36.8	31	20.0	20	12.9	34	21.9

The most frequently mentioned ways in which teachers had not used the computer but planned to in the future were as a tutor (34.6 percent), for student analysis of data (32.7 percent), to run simulations (31.4 percent), for drill in math, spelling, etc. (27.7 percent), for information retrieval (27.6 percent), for materials generation (26.3 percent) and to demonstrate concepts (25.6 percent). The majority of the most frequently mentioned future uses of the computer were concentrated in activities using the computer as an instructional tool. Thus it appears from the responses to this survey that use of the computer as an instructional tool will become more important in the future.

Current Ways of Meeting Information and Assistance Needs

Table 12 shows the ways teachers indicated they are presently getting information and assistance regarding computers. Ways most frequently indicated as being available were journals, magazines and newsletters, professional organizations, college and university faculty, and teachers outside the school. The ways for gaining information and assistance

which were least frequently available to the respondents were district computer coordinator, district curriculum specialist, educational cooperative or intermediate school district personnel, district administrative data processing staff, and other teachers in school. The survey thus suggested that help was generally available from sources outside the school or district rather than from sources within the school or district.

As would be expected, the ways of meeting information and assistance needs which were most frequently available were also those most frequently used. One significant exception was in the case of state departments of education: While this source was commonly reported to be available, it was infrequently reported to be used. The way most frequently used was journals, magazines and newsletters, followed by professional organizations, teachers outside the school and college or university faculty.

TABLE 12

Current Ways of Meeting Information and Assistance Needs

Number of Respondents

Current Ways of Meeting Information and Assistance Needs	Use regularly		Use from time to time		Available but almost never use		Not available		No response		Mean availability & use*
	N	%	N	%	N	%	N	%	N	%	
Other teachers in school	16	10.3	43	27.6	19	12.2	56	35.9	22	14.1	2.14
District computer coordinator	13	8.4	6	3.9	5	3.2	104	67.1	27	17.4	1.44
District curriculum specialist	6	3.9	9	5.8	15	9.7	96	61.9	29	18.7	1.40
Teachers outside of school	10	6.4	64	41.0	31	19.9	27	17.3	24	15.4	2.43
College or university faculty	4	2.6	65	41.7	39	25.0	24	15.4	24	15.4	2.37
Educational cooperative or intermediate school district personnel	13	8.3	30	19.2	13	8.3	73	46.8	27	17.3	1.87
Computer company representatives	7	4.5	49	31.6	37	23.9	38	24.5	24	15.5	2.19
Journals, magazines, newsletters	58	37.2	53	34.0	15	9.6	12	7.7	18	11.5	3.14
Professional organizations	28	18.1	49	31.6	32	20.6	21	13.5	25	16.1	2.65
State department of education	3	1.9	11	7.1	61	39.1	50	32.1	31	19.9	1.74
Community people in computing	8	5.1	36	23.1	35	22.4	46	29.5	31	19.9	2.05
District administrative data processing staff	6	3.8	13	8.3	26	16.7	80	51.3	31	19.9	1.56
Other:	3	1.9	4	2.6	1	0.6	7	4.5	141	90.4	2.20

*Means are based on the following:

Use regularly = 4
Use from time to time = 3
Available but almost never use = 2
Not available = 1

TABLE 12

Current Ways of Meeting Information and Assistance Needs

Number of Respondents

Current Ways of Meeting Information and Assistance Needs	Use regularly		Use from time to time		Available but almost never use		Not available		No response		Mean availability & use*
	N	%	N	%	N	%	N	%	N	%	
Other teachers in school	16	10.3	43	27.6	19	12.2	56	35.9	22	14.1	2.14
District computer coordinator	13	8.4	6	3.9	5	3.2	104	67.1	27	17.4	1.44
District curriculum specialist	6	3.9	9	5.8	15	9.7	96	61.9	29	18.7	1.40
Teachers outside of school	10	6.4	64	41.0	31	19.9	27	17.3	24	15.4	2.43
College or university faculty	4	2.6	65	41.7	39	25.0	24	15.4	24	15.4	2.37
Educational cooperative or intermediate school district personnel	13	8.3	30	19.2	13	8.3	73	46.8	27	17.3	1.87
Computer company representatives	7	4.5	49	31.6	37	23.9	38	24.5	24	15.5	2.19
Journals, magazines, newsletters	58	37.2	53	34.0	15	9.6	12	7.7	18	11.5	3.14
Professional organizations	28	18.1	49	31.6	32	20.6	21	13.5	25	16.1	2.65
State department of education	3	1.9	11	7.1	61	39.1	50	32.1	31	19.9	1.74
Community people in computing	8	5.1	36	23.1	35	22.4	46	29.5	31	19.9	2.05
District administrative data processing staff	6	3.8	13	8.3	26	16.7	80	51.3	31	19.9	1.56
Other:	3	1.9	4	2.6	1	0.6	7	4.5	141	90.4	2.20

*Means are based on the following:

Use regularly = 4
Use from time to time = 3
Available but almost never use = 2
Not available = 1

Table 13

Sources of Software

Sources	Teachers Using Source		Mean Percent of Total Use**
	N	%*	
Hardware vendor (e.g., Apple, Pet, Radio Shack)	95	46.0	12.7
Self (software you create yourself)	111	68.1	28.0
Magazine sources (e.g., Creative Computing, Kilobaud, People's Computer Co.)	83	50.9	7.9
Software vendor (e.g., Computer Curriculum Corp.)	34	20.9	3.4
Other teachers	57	35.0	5.8
District level (or higher) service agency (e.g., intermediate education districts or coops, computing consortia)	44	27.0	9.5
Other	27	16.6	4.8

*The percent of teachers using each source. Total is more than 100 percent since some teachers indicated more than one source.

**Mean percent of total use of software is less than 100 percent since some teachers indicated no sources of software and some indicated use of software that totaled less than 100 percent.

Table 13 shows the use made by teachers of computer software from various sources. Over two-thirds (68.1 percent) were using software they created themselves. The next most popular sources were magazines (used by 50.9 percent of the teachers), hardware vendors (46 percent) and other teachers (35 percent). The highest percentage of total use was of self-created software (28 percent), followed by software from hardware vendors (12.7 percent), and software from the district or a service agency (9.5 percent).

Needs for Information and Assistance

The most important part of this study was the obtaining of data concerning teacher needs for information relating to and assistance with computer use in education. Respondents were asked to rate according to degree of helpfulness various areas of information and various assistance and support activities. The results are presented in Tables 14 through 17.

As shown in Table 14, the respondents felt that almost any information concerning the use of computers in education would be helpful. The only topics whose average ratings were less than "somewhat helpful" were:

- how to sell or distribute computer applications I have developed
- administrative uses of the computer
- how to set up organizations of teachers who use computers

The average rating for all other items was between "very helpful" and "somewhat helpful." Over half of the teachers felt that information about the following topics would be "very helpful":

- how to use computers in my teaching area (69.2 percent)
- how to expand computer use in my school (63.5 percent)

- where to find help in using computers in instruction (62.2 percent)

Table 14

Needs for Information About Computer Use in Education

Information About	Number of Respondents: Very Helpful N	Very Helpful %	Somewhat Helpful N	Somewhat Helpful %	Not Helpful At All N	Not Helpful At All %	No Response N	No Response %	Mean*
Computer use in education	96	62.3	45	29.2	3	1.9	10	6.9	2.65
Fundamentals of computer operation	56	36.4	71	46.1	17	11.0	10	6.5	2.31
Effectiveness of computers in instruction	59	37.8	76	48.7	11	7.1	10	6.4	2.33
How to use computers in my teaching area	108	69.2	34	21.8	4	2.6	10	6.4	2.72
Computer use with special students, i.e., handicapped, gifted, learning disabled	67	43.2	52	33.5	28	18.1	8	5.2	2.28
Computer use in other subject areas	63	40.4	66	42.3	16	10.3	11	7.1	2.35
Computer use in schools other than my own (exemplary cases)	68	43.6	68	43.6	11	7.1	9	5.8	2.38
Available computer systems, hardware, software, etc.	92	59.4	49	31.6	6	3.9	8	5.2	2.58
Where to find help in using computers in instruction	97	62.2	44	28.2	5	3.2	10	6.4	2.63
How to expand computer use in my district	85	54.5	40	25.6	19	12.2	12	7.7	2.43
How to expand computer use in my school	99	63.5	38	24.4	10	6.4	9	5.8	2.60

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

Table 14 (cont'd)

Information About	Number of Respondents: Very Helpful N	Very Helpful %	Somewhat Helpful N	Somewhat Helpful %	Not Helpful At All N	Not Helpful At All %	No Response N	No Response %	Mean*
How to use the computer to help manage instruction	54	34.8	65	41.9	26	16.8	10	6.5	2.22
How to evaluate computer based instructional programs	51	32.9	73	47.1	22	14.2	9	5.8	2.21
How and where to get additional training in computer use	80	51.3	48	30.8	18	11.5	10	6.4	2.44
How to develop my own computer based instructional applications	84	53.8	51	32.7	11	7.1	10	6.4	2.53
How to sell or distribute computer applications I have developed	22	14.1	47	30.1	75	48.1	12	7.7	1.67
Trends in computer technology	60	38.5	71	45.5	16	10.3	9	5.8	2.30
Administrative uses of the computer	34	21.9	59	38.1	50	32.3	12	7.7	1.89
How to explain computer use in instruction to administration and parents	70	44.9	58	37.2	17	10.9	11	7.1	2.36
How to set up a student computer club	39	25.0	74	47.4	31	19.9	12	7.7	2.06
How to set up organizations of teachers who use computers	34	21.8	68	43.6	42	26.9	12	7.7	1.90
Other	10	6.4	5	3.2	6	3.8	135	86.5	2.19

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

- o available computer systems, hardware, software, etc. (59.4 percent)
- o how to expand computer use in my district (54.5 percent)
- o how to develop my own computer based instructional applications (53.8 percent)
- o how and where to get additional training in computer use (51.3 percent)

In order to determine if teacher needs for information about computers in education varied with the teachers' experience with computers, the information need responses were analyzed by length of experience with computers. The results are shown in Table 15. As shown in that table, there was little variation in information needs among teachers with varying length of experience with computers. Over all, the teachers with the least experience felt information in general would be slightly more helpful than did teachers with more experience. That is to be expected. It is interesting to note that the two items of information that experienced teachers felt would be more helpful than less experienced teachers were:

- o How to sell or distribute computer applications I have developed
- o Trends in computer technology

Table 16 shows the responses of teachers concerning the prospective helpfulness of various computer assistance and support activities. As shown in that table, the average rating for all activities except one was between "very helpful" and "somewhat helpful." The only activity with an average rating of less than "somewhat helpful" was that of locating administrative applications. The low rating for that activity is probably to be expected from teachers. Activities which were rated "very helpful" by more than half of the teachers were:

- o Expanding the school's computer program (58.3 percent)
- o Integrating the computer into an instructional program or discipline (57.1 percent)

Table 15

Need for Information About Computer Use in Education:
By Respondents' Experience with Computers

Information About	Overall Mean	Mean of Teachers with Varying Years Experience with Computers*		
		0	1-4	5+
Computer use in education	2.649	2.757	2.684	2.474
Fundamentals of computer operation	2.305	2.595	2.260	2.108
Effectiveness of computers in instruction	2.329	2.432	2.303	2.282
How to use computers in my teaching area	2.717	2.795	2.662	2.750
Computer use with special students, i.e., handicapped, gifted, learning disabled	2.276	2.351	2.224	2.308
Computer use in other subject areas	2.351	2.351	2.320	2.410
Computer use in schools other than my own (exemplary cases)	2.379	2.486	2.325	2.385
Available computer systems, hardware, software, etc.	2.582	2.811	2.519	2.487
Where to find help in using computers in instruction	2.629	2.842	2.658	2.351
How to expand computer use in my district	2.427	2.622	2.400	2.289
How to expand computer use in my school	2.595	2.711	2.558	2.553

*Means based on the following:

Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

Table 15 (cont'd)

Information About	Overall Mean	Mean of Teachers with Varying Years Experience with Computers*		
		0	1-4	5+
How to use the computer to help manage instruction	2.217	2.351	2.234	2.053
How to evaluate computer based instructional programs	2.211	2.297	2.221	2.105
How and where to get additional training in computer use	2.441	2.684	2.416	2.243
How to develop my own computer based instructional applications	2.533	2.684	2.519	2.405
How to sell or distribute computer applications I have developed	1.673	1.514	1.707	1.763
Trends in computer technology	2.296	2.135	2.224	2.590
Administrative uses of the computer	1.893	2.108	1.895	1.676
How to explain computer use in instruction to administration and parents	2.364	2.514	2.395	2.158
How to set up a student computer club	2.060	1.919	2.184	1.946
How to set up organizations of teachers who use computers	1.960	2.081	1.947	1.868
Other	2.190	2.000	2.417	1.800

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

Table 16

Need for Assistance and Support

Assistance and Support Activities	Number of Respondents: Very Helpful N	Very Helpful %	Somewhat Helpful N	Somewhat Helpful %	Not Helpful At All N	Not Helpful At All %	No Response N	No Response %	Mean*
Selecting computer systems for instructional use	77	49.4	54	34.6	14	9.0	11	7.1	2.428
Developing computer literacy/science courses	86	55.1	45	28.8	13	8.3	12	7.7	2.530
Integrating the computer into an instructional program or discipline	89	57.1	52	33.3	2	1.3	13	8.3	2.613
Making teachers aware of the potential of the computer in instruction	82	52.6	50	32.1	11	7.1	13	8.3	2.493
Teaching programming to teachers	60	38.5	57	36.5	25	16.0	14	9.0	2.255
Using new computer systems and instructional applications	71	45.5	58	37.2	12	7.7	15	9.6	2.426
Developing computer based instructional applications	73	46.8	60	38.5	8	1.5	15	9.6	2.483
Evaluating computer use	49	31.4	76	48.7	18	11.5	13	8.3	2.221
Informing administrators, school boards and parents of computers in education	67	42.9	59	37.8	16	10.3	14	9.0	2.356
Designing a comprehensive approach to computer use in my district	67	43.2	46	29.7	29	18.7	13	8.4	2.257
Locating existing instructional applications and materials	88	56.4	50	32.1	3	1.9	15	9.6	2.615
Providing inservice training for teachers	66	42.3	54	34.6	24	15.4	12	7.7	2.265

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

Table 16 (Cont'd)

Assistance and Support Activities	Number of Respondents: Very Helpful N	Very Helpful %	Somewhat Helpful N	Somewhat Helpful %	Not Helpful At All N	Not Helpful At All %	No Response N	No Response %	Mean*
Locating administrative applications	34	21.8	59	37.8	49	31.4	14	9.0	1.886
Implementing computer based instructional management systems	35	22.4	72	46.2	35	22.4	14	9.0	2.014
Expanding the school's computer program	91	58.3	39	25.0	12	7.7	14	9.0	2.557
Designing computer facilities, laboratory, etc.	69	44.2	52	33.3	21	13.5	14	9.0	2.356
Defining a computer support structure including staffing and facilities	44	28.6	62	40.3	33	21.4	15	9.7	2.102
Solving problems related to computer location and use patterns	48	31.0	63	40.6	30	19.4	14	9.0	2.128
Other	9	5.8	3	1.9	4	2.6	140	89.7	2.353

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

- Locating existing instructional applications and materials (56.4 percent)
- Developing computer literacy/science courses (55.1 percent)
- Making teachers aware of the potential of the computer for instruction (52.6 percent)

To determine if a difference in the needs for assistance and support activities existed between experienced and less experienced teachers, the responses were again broken down by length of experience (Table 17). There was little variation in ratings by teachers with varying length of experience with computers. As was the case with the information items discussed above, teachers with less experience rated assistance and support activities more helpful than did teachers with more experience. The only activities that were rated more helpful by more experienced teachers were:

- Using new computer systems and instructional applications
- Evaluating computer use

Table 17

Need for Assistance and Support:
By Respondents' Experience with Computers

Assistance and Support Activities	Overall Mean	Mean of Teachers with Varying Years Experience with Computers*		
		0	1-4	5+
Selecting computer systems for instructional use	2.428	2.769	2.347	2.237
Developing computer literacy/science courses	2.530	2.526	2.553	2.486
Integrating the computer into an instructional program or discipline	2.613	2.711	2.613	2.514
Making teachers aware of the potential of the computer in instruction	2.493	2.553	2.493	2.432
Teaching programming to teachers	2.255	2.444	2.250	2.081
Using new computer systems and instructional applications	2.426	2.378	2.413	2.500
Developing computer based instructional applications	2.483	2.459	2.507	2.459
Evaluating computer use	2.221	2.189	2.237	2.222
Informing administrators, school boards and parents of computers in education	2.356	2.703	2.280	2.162

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

Table 17 (cont'd)

Assistance and Support Activities	Overall Mean	Mean of Teachers with Varying Years Experience with Computers*		
		0	1-4	5+
Designing a comprehensive approach to computer use in my district	2.257	2.486	2.227	2.083
Locating existing instructional applications and materials	2.615	2.622	2.684	2.457
Providing inservice training for teachers	2.265	2.474	2.263	2.054
Locating administrative applications	1.886	2.297	1.853	1.541
Implementing computer based instructional management systems	2.014	2.216	1.973	1.889
Expanding the school's computer program	2.557	2.694	2.493	2.553
Designing computer facilities-laboratory, etc.	2.356	2.459	2.342	2.278
Defining a computer support structure including staffing and facilities	2.102	2.378	2.000	2.027
Solving problems related to computer location and use patterns	2.128	2.297	2.080	2.054
Other	2.353	2.000	2.400	2.667

*Means based on the following: Very Helpful = 3
Somewhat Helpful = 2
Not Helpful At All = 1

E. CONCLUSIONS AND IMPLICATIONS

This section presents conclusions based on the information collected through this study as well as implications for providing services in the form of information and assistance to teachers using computers. In interpreting the conclusions presented it should be remembered that the data was gathered from a selected group of teachers who were identified as having knowledge of and/or experience in the use of computers in education. Conclusions drawn from this sample assume that these teachers are generally representative of teachers who have knowledge of and/or experience with computers; it should be noted that the sample is in no way intended to be representative of the population of teachers in general.

Currently, teachers with knowledge of and/or experience with the use of computers in education have teaching experience fairly evenly distributed from none through 20 years. Their years of experience using computers is fairly evenly distributed from none throgh ten years, although about one-fourth of the teachers reported no years of experience with the computer. The vast majority are teaching in secondary schools and are teaching mathematics, science or computer science. Very few were teaching in other subject areas and very few were teaching at the elementary level.

To serve the needs of teachers currently knowledgeable about or experienced in using computers, services agencies should concentrate particularly on providing services to secondary school (especially high school) teachers in the areas of mathematics, science and computer science.

Availability of Computer Terminals

The majority of the teachers reported that computer terminals or microcomputers were available in their schools for use in their classes. This would suggest that information and assistance efforts should be oriented toward applications that involve on-line processing.

Uses of Computers

The most frequent current uses of computers clustered in the areas of teaching about computers and teaching how to use computers. Computers were not reported as currently being used very much as instructional tools; however, the computer uses most frequently planned for the future were those involving the computer as an instructional tool (as a tutor, for drill, to run simulations, etc.). Thus, it appears that information and assistance would usefully be directed to areas that utilize the computer as an instructional tool as well as to areas involved in teaching about the computer and how to use the computer.

Current Ways of Meeting Information and Assistance Needs

Most teachers are currently obtaining information and assistance from sources outside their schools and districts, especially through periodicals, professional organizations, and college teachers as well as secondary teachers outside their districts. Very little help is available from within the teachers' own school or district. Both the lack of availability of local information and assistance, and the fact that teachers are already actively looking to outside sources, imply the need for and appropriateness of providing information and services through outside agencies.

Needs for Information and Assistance

Teachers with considerable computer experience as well as those with little or no computer experience need information on and assistance with almost all areas concerning the use of computers in education. This implies that information about and assistance with a wide variety of computer-related areas, as long as they apply to the appropriate subject and grade levels, would be decidedly useful. Particularly useful information and assistance would be in the areas of using computers in particular teaching areas; general information about the use of computers in education; where to find help in using computers in instruction; available computer systems, hardware, software, etc.; how to expand computer use in districts; how to develop computer based instructional applications; how and where to get additional training in computer use; locating existing instructional applications and materials; developing computer literacy/science courses; and making teachers aware of the potential of the computer for instruction.

IV APPENDIX

Sample Questionnaire, Superintendent Survey

Dear Superintendent:

I need your help for 15 seconds! Please take that long, right now, to respond to the two questions below, which only you can answer.

Your responses will help me a great deal in planning a new program of technical assistance in educational use of computers for the Northwest region.

Just mark your responses, then detach and return the post card – no need to fold or staple.

Thanks for your help!

Judith B. Edwards, Director
Computer Technology Program
Northwest Regional
Educational Laboratory

DETACH HERE

My district currently is using a computer(s) in administrative tasks.

1. ☐ Yes ☐ No

If No: My district probably will be using a computer(s) in administration within 3 years. ☐ Yes ☐ No

My district currently is using a computer(s) in the instructional program.

2. ☐ Yes ☐ No

If No: My district probably will be using a computer in instruction within 3 years.

☐ Yes ☐ No

District (District Name requested only to facilitate followup)

PLEASE RETURN BY MAY 16

Northwest Regional Educational Laboratory

Computer Technology Program

710 S.W. Second Avenue • Portland, Oregon 97204

Northwest Regional Educational Laboratory

710 S.W. Second Avenue • Portland, Oregon 97204

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Portland, OR 97204

Northwest
Regional
Educational
Laboratory

Sample Cover Letter, Teacher Survey

710 S.W. Second Avenue • Portland, Oregon 97204 • Telephone (503) 248-6800

March 15, 1979

Dear Colleague:

The Computer Technology Program of the Northwest Regional Educational Laboratory is interested in determining the needs for information and technical assistance experienced by K-12 teachers who use computers. The enclosed survey is intended to reach selected teachers in Alaska, Hawaii, Montana, Idaho, Oregon, and Washington who are knowledgeable in educational computing, whether they are currently active or not.

School district superintendents are requested to pass the questionnaire on to the most appropriate teacher in their respective districts.

Please note that the questionnaire asks for the names and addresses of the respondents. This information is desired by the program staff for followup purposes and will be absolutely restricted to their use. Respondents who wish to omit their names and addresses should feel free to do so.

It takes ten minutes to complete the questionnaire. When you are done, please fold the questionnaire so that the return address is on the outside. Staple it closed and drop it in the mail.

If you wish to see a summary of the results of the survey and/or an abstract of the Computer Technology Program, check the appropriate spaces (Section I, questions 10 and 11).

The data generated by this survey may contribute to a significant expansion of information and technical assistance services available to teachers who use computers. Your timely response will be deeply appreciated.

Sincerely,

Judith B. Edwards

Judith B. Edwards
Computer Technology Program

AN EQUAL OPPORTUNITY EMPLOYER

(1-4)

(5)

Sample Questionnaire, Teacher Survey

Northwest Regional Educational Laboratory

COMPUTER TECHNOLOGY PROGRAM

Technical Assistance Needs Survey

I. DEMOGRAPHIC DATA - *Please supply the following information:*

1. Your name _____

2. Your address _____

(7) (8) (9) 3. Grade levels that you teach. *Circle all that apply.*

K 1 2 3 4 5 6 7 8 9 10 11 12

4. Areas in which you are teaching. *Check all that apply.*

(10) ___ Mathematics
(11) ___ Science
(12) ___ Data processing
(13) ___ Social science
(14) ___ Computer science
(15) ___ Music
(16) ___ Other *(please indicate)* _____

5. Have you received training in computing or computer use in education?

(17) ___ Yes ___ No

If yes, check area that applies:

(18) ___ Computer use in your discipline
(19) ___ Business data processing
(20) ___ Computer programming
(21) ___ Survey of computers in education
(22) ___ Computer science
(23) ___ Other *(please indicate)* _____

6. In your school, how many computer keyboard terminals (including microcomputers) are available for student use? *Circle the number that applies.*

(24-25) 0 1 2 3 4 5 6 7 8 9 10+ Don't know

7. Is a computer terminal available for use with your classes?

(26)

___ Yes, anytime I need it ___ No

___ Yes, some of the time ___ Don't know

(27-28) 8. Number of years, including current school year, that you have been teaching: _____.

(29-30) 9. Number of years, including current school year, you have been using the computer in your classes: *(if none, write 0)* _____

(31) 10. *Check here if you would like to receive a copy of the results of this survey.* _____

(32) 11. *Check here if you would like to receive an abstract of the Computer Technology Program of the Northwest Regional Educational Laboratory.* _____

II. YOUR COMPUTER USE - *Listed below are some ways teachers use or teach about computers. Please check those responses that reflect your personal use of computers in the classroom. Please respond for each activity.*

	COMPUTER ACTIVITY	PAST/ NOT NOW (Used the computer this way in the past, but not now)	CURRENT USE (Am currently using the computer in this way)	FUTURE PLANS (Haven't used the computer in this way but plan to in future)	NEVER (Haven't used the computer in this way and don't plan to)
(33)	1. As a calculator				
(34)	2. Run simulations				
(35)	3. Instructional games				
(36)	4. Leisure time activity				
(37)	5. Student problem solving				
(38)	6. Drill in math, spelling, etc				
(39)	7. As a tutor (teach content)				
(40)	8. Demonstrate concepts				
(41)	9. Score tests				
(42)	10. Instructional management				
(43)	11. Materials generation (tests or worksheets)				
(44)	12. Information retrieval				
(45)	13. Student analysis of data				
(46)	14. Teach programming				
(47)	15. Teach terminal operation				
(48)	16. Teach data processing				
(49)	17. Teach hardware and software procedures				
(50)	18. Teach history of computers				
(51)	19. Teach how computers are applied				
(52)	20. Teach about computer careers				
(53)	21. Teach about the role and impact of computers in society				

III. MEETING CURRENT INFORMATION AND ASSISTANCE NEEDS - *Listed below are ways in which teachers who use computers get information and assistance regarding computers in education. Please check those that you use.*

		Use regularly	Use from time to time	Available but almost never use	Not available
(54)	1. Other teachers in school				
(55)	2. District computer coordinator				
(56)	3. District curriculum specialist				
(57)	4. Teachers outside of school				
(58)	5. College or university faculty				
(59)	6. Educational cooperative or intermediate school district personnel				
(60)	7. Computer company representatives				
(61)	8. Journals, magazines, newsletters				
(62)	9. Professional organizations				
(63)	10. State department of education				
(64)	11. Community people in computing				
(65)	12. District administrative data processing staff				
(66)	13. Other:				

IV. SOFTWARE SOURCES - *To what extent do you actually use educational software coming from the sources listed below? Please enter in the space opposite each type of source a number which represents that source's approximate percentage of your total use.*

SOURCE	% OF YOUR ACTUAL USE	
1. Hardware vendor (e.g., Apple, Pet, Radio Shack).....	_____	(67-68)
2. Self (software you create yourself).....	_____	(69-70)
3. Magazine sources (e.g., Creative Computing, Kilobaud, People's Computer Co.)	_____	(71-72)
4. Software vendor (e.g., Computer Curriculum Corp.).....	_____	(73-74)
5. Other teachers	_____	(75-76)
6. District level (or higher) service agency (e.g., intermediate education districts or coops, computing consortia).....	_____	(77-78)
7. Other *(specify)* _____.....	_____	(6-7)
	100%	

V. INFORMATION NEEDS - *Listed below is a number of areas related to computer use in education. Please indicate your need for information (in the form of written materials which answer questions) in each area.*

		INFORMATION ABOUT	Information on this topic would be very helpful to me: VERY HELPFUL	Information on this topic would be somewhat helpful to me: SOMEWHAT HELPFUL	Information on this topic would be of no use to me: NOT HELPFUL AT ALL
(8)	1.	Computer use in education			
(9)	2.	The fundamentals of computer operation			
(10)	3.	The effectiveness of computers in instruction			
(11)	4.	How to use computers in my teaching area			
(12)	5.	Computer use with special students, i.e., handicapped, gifted, learning disabled			
(13)	6.	Computer use in other subject areas			
(14)	7.	Computer use in schools other than my own (exemplary cases)			
(15)	8.	Available computer systems, hardware, software, etc.			
(16)	9.	Where to find help in using computers in instruction			
(17)	10.	How to expand computer use in my district			
(18)	11.	How to expand computer use in my school			
(19)	12.	How to use the computer to help manage instruction			
(20)	13.	How to evaluate computer based instructional programs			
(21)	14.	How and where to get additional training in computer use			
(22)	15.	How to develop my own computer based instructional applications			
(23)	16.	How to sell or distribute computer applications I have developed			
(24)	17.	Trends in computer technology			
(25)	18.	Administrative uses of the computer			
(26)	19.	How to explain computer use in instruction to administration and parents			
(27)	20.	How to set up a student computer club			
(28)	21.	How to set up organizations of teachers who use computers			
(29)	22.	Other:			

VI. ASSISTANCE NEEDS - *Listed below are types of support and assistance in the form of direct interaction among people (e.g., consultants, workshops) provided to teachers who use computers. Please indicate how helpful you would find each type of assistance.*

ASSISTANCE AND SUPPORT ACTIVITIES	Assistance in these areas would be very helpful to me: VERY HELPFUL	Assistance in these areas would be somewhat helpful to me: SOMEWHAT HELPFUL	Assistance in these areas would be of no use to me: NOT HELPFUL AT ALL
(30) 1. Selecting computer systems for instructional use			
(31) 2. Developing computer literacy/ science courses			
(32) 3. Integrating the computer into an instructional program or discipline			
(33) 4. Making teachers aware of the potential of the computer in instruction			
(34) 5. Teaching programming to teachers			
(35) 6. Using new computer systems and instructional applications			
(36) 7. Developing computer based instructional applicatons			
(37) 8. Evaluating computer use			
(38) 9. Informing administrators, school boards and parents of computers in education			
(39)10. Designing a comprehensive approach to computer use in my district			
(40)11. Locating existing instructional applications and materials			
(41)12. Providing inservice training for teachers			
(42)13. Locating administrative applications			
(43)14. Implementing computer based instructional management systems			
(44)15. Expanding the school's computer program			
(45)16. Designing computer facilities - laboratory, etc.			
(46)17. Defining a computer support structure including staffing and facilities			
(47)18. Solving problems related to computer location and use patterns			
(48)19. Other:			

UPON COMPLETING THE QUESTIONNAIRE PLEASE FOLD, STAPLE AND PLACE IN MAIL